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Notice of Allowability

Application No.

10/733,987

Examiner

Tuan N. Nguyen

Applicant(s)

SANDROCK ET AL.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 04/15/2005.
2. ☒ The allowed claim(s) is/are 1-4, 6-18, 20- 21.
3. ☒ The drawings filed on 11 December 2003 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 6. <input checked="" type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date <u>6/8/2005</u> . |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |

Response to Amendment

1. In responding to applicant's amendment filed 04/15/2005, claim 1 has been amended, claims 17-20 have been withdrawn, claim 21 has been added.

EXAMINER'S AMENDMENT

2. An examiner's amendment to the record appears below, to the amended claims 1, 17. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Bolesh J. Skutnik (Attorney for Applicant, Reg. No. 36,347) on 05/31/2005 and June 14, 2005.

CLAIM 1:

1. (currently amended) A high damage threshold multi-clad optical fiber suitable for use as a high power fiber/fiber amplifier, comprising:

a rare-earth-doped active core with index of refraction n_1 ;

wherein said active core is selected from the group consisting of near-single mode and single mode;

a pump core with index of refraction n_2 , surrounding said active core;

a glass inner cladding layer with index of refraction n_3 , surrounding said pump core,
said inner cladding preventing damage to a layer surrounding said glass inner cladding layer during high power use;

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a protective coating, surrounding said ~~additional~~ glass inner cladding layer, with an index of refraction n_4 , and

wherein n_1 is greater than n_2 , n_2 is greater than n_3 , and n_3 is greater than n_4 .

CLAIM 5: Claim 5 has been canceled.

CLAIM 17:

17. (currently amended) A method for manufacturing said multi-clad optical fiber of claim 1, comprising the steps of:

- a. vaporizing a composition containing silicon and preselected rare-earth dopants;
- b. depositing said silicon and said preselected dopants on an interior of a hollow silica rod to form an interior layer of doped silica;
- c. repeating step b until a predetermined thickness of said doped silica is present;
- d. if necessary incorporating pre-selected dopants into the interior silica layer by means of the solution method;
- e. heating and collapsing said hollow silica rod to form a solid rod with said doped silica as a solid active core, with index of refraction, n_1 and said hollow silica rod as a pump core layer, with refractive index, n_2 ;
- f. depositing a second doped silica layer on an exterior of said solid rod by plasma-enhanced chemical vapor deposition, said layer having an index of refraction, n_3 ;
- g. heating and drawing said preform to form said optical fiber;
- h. depositing a polymer coating on an exterior of said second doped silica layer, to form a finished optical fiber, and preform. The polymer layer can be applied either prior to fiber drawing or during the fiber drawing process.
- i. wherein n_1 is greater than n_2 , n_2 is greater than n_3 , and n_3 is greater than n_4 and wherein said active core is selected from the group consisting of near-single mode and single mode.

CLAIM 19: Claim 19 has been canceled.

REASON FOR ALLOWANCE

Allowable Subject Matter

2. The following is an examiner's statement of reasons for allowance - Applicant's response filed on 12/15/2004 has been considered, with respect to claims 1, and 17, the references of the record fail to teach or suggest a high power amplifier fiber and the method of making the same:

Claims 1, 17:

A high damage threshold multi-clad optical amplifier fiber comprising a rare-earth-doped active core consisting of near-single mode and single mode with index of refraction n_1 , having a pump core with index of refraction n_2 surrounding said active core, and a glass inner cladding layer with index of refraction n_3 preventing damage to cladding layer during high power usage surrounding said pump core, *where a protective coating, surrounds the glass inner cladding layer with an index of refraction n_4 , wherein n_1 is greater than n_2 , n_2 is greater than n_3 , and n_3 is greater than n_4 .*

3. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Communication Information

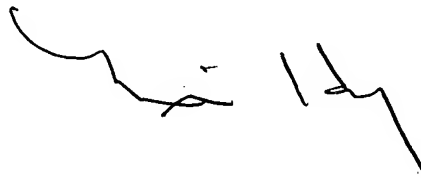
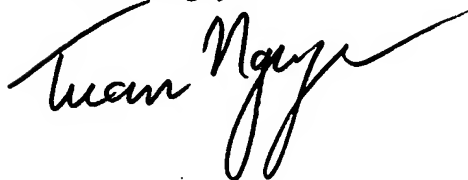
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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan N Nguyen whose telephone number is (571) 272-1948. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harvey Minsun can be reached on (571) 272-1835. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tuan N. Nguyen



MINSUN OH HARVEY
PRIMARY EXAMINER